

be understood that various changes and modifications may be made therein without departing from the scope of the appended claims.

cm What is claimed is:

1. A polishing apparatus for polishing a surface of a workpiece comprising:

a turntable having a polishing surface thereon;

a top ring for supporting the workpiece to be polished and pressing the workpiece against said polishing surface under a first pressing force, said top ring having a holding surface for holding the workpiece;

a pressurized fluid source for supplying pressurized fluid;

a plurality of openings provided in said holding surface of said top ring for ejecting said pressurized fluid supplied from said pressurized fluid source, a plurality of areas each having said openings being defined in said holding surface so that said pressurized fluid is selectively ejectable from said openings in said respective areas.

2. An apparatus according to claim 1, wherein said plurality of areas comprises concentric annular areas.

3. An apparatus according to claim 1, wherein said plurality of areas are defined by communicating with a plurality of chambers, respectively formed in said top ring through said openings.

4. An apparatus according to claim 1, wherein said first pressing force and a pressure of said pressurized fluid are variable independently of each other.

5. An apparatus according to claim 1, wherein a pressure of said pressurized fluid is variable in each of said areas.

6. An apparatus according to claim 1, further comprising: a presser ring vertically movably disposed around said top ring; and

a pressing device for pressing said presser ring against said polishing surface under a second pressing force which is variable.

7. An apparatus according to claim 1, wherein said top ring has a recess defined therein for accommodating the workpiece therein.

8. A method of polishing a workpiece, comprising the steps of:

holding a workpiece between a polishing surface of a turntable and a holding surface of a top ring disposed above said turntable;

pressing the workpiece by said top ring against said polishing surface under a first pressing force; and

ejecting pressurized fluid from openings in a plurality of areas in said holding surface of said top ring toward the workpiece held by said top ring, said pressurized fluid being selectively ejectable from said openings in said respective areas; and

polishing the workpiece in such a state that a pressing force applied to the workpiece by said pressurized fluid is variable in a central portion and an outer circumferential portion of the workpiece, respectively.

9. A method according to claim 8, further comprising the step of:

pressing a presser ring vertically movably disposed around said top ring against said polishing surface around the workpiece under a second pressing force which is determined based on said first pressing force.

10. A method according to claim 8, said second pressing force is determined on the basis of a pressure distribution on the workpiece caused by said pressurized fluid ejected from said openings in said respective areas.

11. A top ring for supporting the workpiece to be polished, for use in a polishing apparatus, comprising:

a holding surface for holding the workpiece; and

a plurality of openings, provided in said holding surface, from which pressurized fluid is ejected, a plurality of areas each having said openings being defined in said holding surface so that said pressurized fluid is selectively ejectable from said openings in said respective areas.

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12. A method of polishing a surface of a workpiece,
comprising:
holding a workpiece by a top ring; and
pressing the workpiece against a polishing
surface of a turntable to polish a surface of the
workpiece by applying independently adjustable
pressures to substantially concentric circular areas of the
workpiece, respectively.

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13. A method according to claim 12, wherein said
pressure is produced by air pressure.

14. A method according to claim 12, further
comprising applying an adjustable pressure to a presser
ring vertically movably disposed around said top ring for
pressing said polishing surface.

15. A method according to claim 14, wherein said
pressure applied to said presser ring is produced by air
pressure.

16. A method according to claim 12, wherein the
pressure applied to a central portion of the workpiece is
larger than the pressure applied to an outer
circumferential portion of the workpiece.

17. A method according to claim 12, wherein the pressure applied to an outer circumferential portion of the workpiece is larger than the pressure applied to a central portion of the workpiece.

18. A method of polishing a surface of a workpiece, comprising:
holding a workpiece by a top ring; and
pressing the workpiece against a polishing surface of a turntable to polish a surface of the workpiece so that an annular area of said workpiece is selectively pressed.

19. A method according to claim 18, wherein said annular area of said workpiece is an outer circumferential portion of said workpiece.

20. A method according to claim 18, further comprising applying a pressure to a presser ring vertically movably disposed around said top ring for pressing said polishing surface.

21. A method according to claim 18, wherein each of said pressures applied to the workpiece and said presser ring is produced by air pressure.

22. A method of polishing a surface of a workpiece, comprising:
holding a workpiece by a top ring;

holding a workpiece by a top ring; and
pressing the workpiece against a polishing
surface of a turntable to polish a surface of the workpiece
by applying at least two pressures to two chambers
configured above a central portion and an outer
circumferential portion of the workpiece, respectively.

25. A method of polishing a surface of a workpiece,

comprising:

holding a workpiece by a top ring;

pressing the workpiece against a polishing surface of a turntable to polish a surface of the workpiece so that at least two pressures are applied to the workpiece and are different in a central portion and in an outer circumferential portion of the workpiece; and

applying a pressure to a presser ring vertically movably disposed around said top ring by air pressure for pressing said polishing surface.

26. A method of polishing a surface of a workpiece,

comprising:

holding a workpiece by a top ring;

applying air pressure to an interior of said top ring so that the polishing pressures applied to the workpiece are different at different radial portions of said workpiece; and

applying a pressure to a presser ring vertically movably disposed around said top ring by air pressure for pressing said polishing surface.

27. A polishing apparatus for polishing a surface of

a workpiece comprising:

a turntable having a polishing surface thereon;

a top ring for supporting the workpiece to be polished to polish a surface of the workpiece on said polishing surface.

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a turntable having a polishing surface thereon;
a top ring for supporting the workpiece to be
polished on a holding surface of said top ring and

36. A polishing apparatus according to claim 31,
wherein said first pressing device and second pressing
device provide said first and second pressing forces by air
pressure.

a turntable having a polishing surface thereon;
a top ring for supporting the workpiece to be
polished on a holding surface of said top ring;
a pressing mechanism for pressing the workpiece
against said polishing surface of said turntable so that a
polishing pressure applied to a central portion of the
workpiece is different from a polishing pressure applied
to an outer circumferential portion of the workpiece to
polish a surface of the workpiece; and

a presser ring vertically movably disposed
around said top ring, said presser ring being movable
with respect to said top ring, and pressed against said
polishing surface by air pressure.

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